10. (amended) The method of Claim 9, [characterised in that when] wherein after curing has been completed, and the lining assumes a rigid condition, the [bag (28)] bladder is again deflated and removed from the [now remaining in place lining.] lining piece which remains in place.

Please add new claims 11 and 12, as follows:

11. The lining of claim 3, wherein the collar [(26)] is bonded to the inside of the main pipe tubular structure [(22)] about the aperture [(27)].

12. The apparatus of claim 5, wherein the inflatable material is a reinforced silicone rubber.

REMARKS

This Amendment is submitted in response to the outstanding Office Action wherein the Examiner indicated that claims 5-10 which were objected to would be allowable if rewritten in independent form, rejected claim 4 on formal grounds and rejected claims 1-3 over the prior art. The indication of allowable subject matter is noted with appreciation. Reconsideration of the application in view of the amendments

presented herewith and the discussion at the personal interview is respectfully requested.

Prior to discussing the amendments presented herewith, the assignee of the application thanks Examiner Brinson for the time, consideration and cooperation offered to its personal representatives during a personal interview on March 3, 1999. The amendments submitted herewith are consistent with the discussions at the personal interview and the draft claim language for amending claim 1-10 left with Examiner Brinson for his review and newly presented claims 11 and 12.

Prior to discussing the specific amendments, applicant wishes to take this opportunity to set forth the following few brief remarks about the invention which were discussed with Examiner Brinson during the personal interview. As noted the purpose of this invention is to provide an effective repair coupling arrangement in the region where a lateral passageway meets a main pipe. Often, this occurs repeatedly during the length of a main sewer line connection and the lateral service connections and in many cases it is only the lateral/main pipe connection which requires a repair.

The method repair of choice of pipelines often is a cured-in place repair which does not require excavation and replacement of the existing pipeline. The invention provides a lining in the form of a seal which is tailored to meet the

particular lateral/main pipe connection. The repair lining includes a length of tubular structure of resin absorbent material having an aperture to conform to the lateral entrance. The tubular portion is impregnated with a curable synthetic resin which is applied to the main pipe surface on both sides of the lateral connection.

A lateral extension tubular structure, also of a resin absorbent material, is attached to the main tubular portion at the aperture therein. This tubular portion is also impregnated with a curable synthetic resin. Accordingly, when the main line tubular structure is placed in alignment with the lateral connection, the lining assembly is inflated, preferably by a bladder, so that the full circumference of the main and lateral/main connection is relined in a single operation. This configuration has proven to be particularly effective for repair of the lateral/main pipe connections.

The lining is installed by utilizing an installation apparatus including an elongated bladder having a conforming arm extension secured to an aperture in the tubular portion of the bladder. The bladder may be positioned on a hollow core to allow fluid normally carried in the main pipeline to continue during the installation and cure. Prior to placing the loaded apparatus into the main pipeline, the bladder is deflated, the tubular portion of the liner placed over the bladder with the

arm inserted into the bladder so that the loaded apparatus can be positioned at the lateral entrance. Once positioned at the lateral, the bladder is inflated causing the main tubular portion to be pressed against the main pipeline with the bladder extension forcing the arm portion of the lining to extend up into the lateral pipeline. After the lining is in place, the lining is maintained in position until the resin is cured. At that time the bladder is deflated and withdrawn with the apparatus.

Claims 1-3 as originally presented in this national phase filing are directed to the liner, commonly referred to as a "Short Tee" lining. As discussed in the application, the portion of the Tee which extends into the lateral can be affixed at a right angle or at a Wye in order to accommodate to various types of lateral/main connections. Claims 4-7 were directed to the installation apparatus for installing the liner and claims 8-10 are directed to the method of installation. All the claims have been maintained, but have been amended taking into consideration the Examiner's helpful comments set forth in the Office Action. As discussed during the interview and as noted on the Interview Summary, all the claims will be examined together.

Newly presented claim 11 and 12 are directed to additional features of the lining and apparatus set forth in the application.

In the Office Action, the Examiner rejected claims 1-10 due to informality utilizing the "characterized in that" and "register" with language. This objection is respectfully traversed and deemed obviated in view of the amendments introducing conventional "wherein" language and noting that various elements are "aligned with" as suggested. Accordingly, this objection should be withdrawn.

The Examiner rejected claim 4 under 35 U.S.C. §112, second paragraph as being indefinite due to the lack of structural connection between the inflation member and the assembly of claim 1. This rejection is respectfully traversed and deemed obviated in view of the substantial amendment to claim 4 which sets forth the cooperation of parts as suggested. This amendment to claim 4 introduces the definition of the liner of amended claim 1 so that amended claim 4 recites a structural connection between the lining and the inflation bladder. Accordingly, it is respectfully submitted that the rejection of claim 4 should also be withdrawn.

The Examiner also rejected claims 1-3 under 35 U.S.C. §103(a) as being unpatentable over PCT application WO 91/16568 to Wood. The Examiner considered that Wood discloses an

assembly for forming a cured-in place lining at the region of a lateral/main pipe connection. This lining includes the length of tubular structure (38) for application to the main pipe surface (10) to each side of the lateral pipe (12). The Examiner notes that the structure does not recite a resin impregnated layer, however he considered this to be obvious to one of ordinary skill in the art to provide tubular structure (38) with a resin impregnated layer.

This rejection is respectfully traversed for the following reasons.

In the amendments presented herewith, applicant has amended claim 1 directed to the disclosed lining to recite affirmatively that the portion of the lining applied to the main pipeline is a tubular configuration. In view of this, the lining applied to the main pipeline portion on both sides of the lateral/main connection covers the full circumference of the main pipeline, something clearly not contemplated or suggested in any way by Wood. Additionally, it is noted that element 38 in Wood which the Examiner refers to as a "length of tubular structure" is actually the inflation bladder that locks the Wood apparatus in position. There is simply no mention or suggestion in Wood of including a tubular structure including at least one layer of a resin impregnable material for application to the main pipe surface on each side of the lateral connection.

Wood in Fig. 7 shows a tubular section 14 presented to the lateral surface and a collar 100 about the lateral opening. In marked contrast to this, applicants provide a main pipe tubular structure of at least one layer of resin absorbent material impregnated with the resin and a tubular structure which lies within lateral pipe. Thus, applicant's "Tee" or "Wye" configuration includes two tubular structures which are joined--not a singular tubular structure having a collar disposed at one end thereof as in Fig. 7 in Wood.

For these reasons it is respectfully submitted that amended claims 1-3 and new claims 11 and 12 are patentable over Wood and the rejection should be withdrawn.

Claims 5-10 indicated as allowable have been rewritten to include the limitations of earlier claim 4 as suggested by the Examiner. Accordingly, it is respectfully submitted that these claims are now in condition for immediate allowance along with claims 1-4 and new claims 11 and 12.

For the reasons set forth herein which are consistent with the discussions at the personal interview, applicant respectfully submits that the application is now in condition for immediate allowance. Accordingly, the Examiner is respectfully requested to reconsider the application at an early date with a view towards issuing a favorable action thereon. If upon review of the application, the Examiner is unable to issue

an immediate Notice of Allowance, the Examiner is respectfully requested to telephone applicant's attorney with a view towards resolving the outstanding issues.

Early and favorable action is earnest solicited.

Respectfully submitted,

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